

REMARKS

Claims 1 through 10 and 32 through 36 were pending in this application. At present, claims 1-5 and 32-36 stand rejected, claims 6-10 are withdrawn from consideration pending allowance of generic claim 1. In particular, claims 1, 2, 32, and 33 stand rejected under 35 U.S.C. § 103(a) in view of the patent to Kobayashi et al. (United States Patent No. 5,998,863, issued December 7, 1999, and having a filing date of July 15, 1997, hereinafter "Kobayashi") and further in view of the patent to Eastman et al. (United States Patent No. 4,230,173, issued October 28, 1980, and having a filing date of September 5, 1978, hereinafter "Eastman"). Claims 3 and 34 stand rejected under 35 U.S.C. § 103(a) in view of Kobayashi and Eastman, and further in view of the patent to Terao et al. (United States Patent No. 6,005,772, issued December 21, 1999, and having a filing date of May 20, 1998, hereinafter "Terao"). Claims 4 and 35 stand rejected under 35 U.S.C. § 103(a) in view of Kobayashi and Eastman, and further in view of the patent to Berenholz et al. (United States Patent No. 5,168,919, issued December 8, 1992, and having a filing date of June 29, 1990, hereinafter "Berenholz"). Claims 5 and 36 stand rejected under 35 U.S.C. § 103(a) in view of Kobayashi and Eastman, and further in view of the patent to Mizuno et al. (United States Patent No. 5,522,452, issued June 4, 1996, and having a filing date of November 22, 1993, hereinafter "Mizuno"). Claims 6 through 10 remain withdrawn, pending allowance of generic claim 1. No claim amendments are presented herein. Based on the Remarks presented herein, Applicants respectfully traverse the rejections of claims 1 through 5 and 32 through 36. Accordingly, claims 1 through 10 and 32 through 36 are therefore pending in the present application. Reconsideration of this application is respectfully requested.

Response to Arguments

The Examiner's responses to Applicants' arguments have been carefully considered. Applicants respectfully, but most strenuously, traverse the rejection of claims 1-5 and 32-36 under 35 U.S.C. § 103(a) for two fundamental reasons. First, the rejections are based upon an

impermissible hindsight reconstruction of Applicants' invention. Second, even if the art cited by the Examiner is combined in the manner suggested by the Examiner (which manner Applicants submit is improper), the combination fails to teach, disclose, or suggest at least one feature of Applicants' claimed invention, and in fact teaches away from at least one feature of Applicants' claimed invention.

Applicants submit that the rejections are based upon an impermissible hindsight reconstruction of Applicants' invention. Under 35 U.S.C. § 103(a), an invention is not patentable "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious *at the time the invention was made* to a person having ordinary skill in the art to which said subject matter pertains." (emphasis added herein). Thus, patent examination requires viewing an invention through the eyes of an artisan of ordinary skill *at the time the invention was made*, rather than one having the benefit of the teachings of the invention being examined. Ecolochem, Inc. v. Southern California Edison Co., 227 F.3d 1361, 1371, 56 USPQ2d 1065, 1072 (Fed. Cir. 2000) (quoting In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999)).

Since patent examination, by its very nature, tempts the use of hindsight due to the availability of the teachings contained in Applicants' patent specification and claims, the courts have developed a number of safeguards to limit patent examination to information known *at the time the invention was made*, as required by 35 U.S.C. § 103(a). In particular, three of these safeguards are of interest in the present case. The scope of prior art used in examination must be limited to art that is either within the inventor's field of endeavor, or related to the particular problem with which the inventor was involved (i.e., analogous art). Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH, 139 F.3d 877, 881, 45 USPQ2d 1977, 1981 (Fed. Cir. 1998); In re Oetiker, 977 F.2d 1443, 1447, 24 USPQ2d 1443, 1447 (Fed. Cir. 1992). In order to establish a *prima facie* case of obviousness based upon multiple references, there must be a suggestion in the art to combine the references. In re Lee, 277 F.3d 1338, 1343, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002); McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1351, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001); Tec Air, Inc. v. Denso Manufacturing. Michigan, Inc., 192 F.3d 1353, 1359-60, 52 USPQ2d 1294, 1298 (Fed. Cir. 1999). There is no suggestion to combine when one or more

of the references “teaches away” from the combination. McGinley, 262 F.3d at 1354, 60 USPQ2d at 1010; Ecolchem, 227 F.3d at 1374, 56 USPQ2d at 1075; Tec Air, 192 F.3d at 1360, 52 USPQ2d at 1298. In summary, it is improper to “use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.” Ecolchem, 277 F.3d at 1371, 56 USPQ2d at 1072 (quoting In re Fine, 837 F.2d 1071, 1075, 5 USPQ2d 1780, 1783 (Fed. Cir. 1988)).

Applicants submit that in constructing the obviousness rejections, the Examiner has rejected these safeguards and has instead impermissibly used Applicants’ invention as a blueprint, applying various pieces of art in accordance with the teachings of Applicants’ own invention, rather than in accordance with what was known to one of ordinary skill in the art at the time of Applicants’ invention. As a result, the rejections have a fundamental flaw: none of the art cited by the Examiner teaches, discloses, or suggests limiting fluid flow to one direction in order to improve cooling of a vertically oriented electronic module. On the current record, only the teachings of Applicants’ own invention establish this connection, and provide the blueprint by which Applicants’ invention is constructed.

In responding to Applicants’ argument that Eastman is nonanalogous art, Applicants submit that the Examiner has confirmed Applicants’ argument. As noted in Applicants’ response of December 9, 2003, art is analogous if it is either within the field of Applicants’ endeavor, or if it is reasonably pertinent to the *particular problem with which Applicant was involved*. The Examiner has not addressed Applicants’ argument that Eastman is not within Applicants’ field of endeavor, apparently conceding this point. As previously noted, Applicants were involved with the *problem* of providing a phase-change fluid heat removal system for a vertically oriented electronic module. Applicants’ *solution* involves the use of check valves to limit fluid flow to a single direction. The Examiner’s response indicates that “Eastman is not used to teach or address electronic device orientation.” See Paper number 8, page 2. In other words, Eastman is not used to address *the particular problem with which Applicants were involved*, as is required for art that is not within Applicants’ field of endeavor. Rather, the Examiner indicated that Eastman is being used “to provide a plurality of check valves...” See Paper number 8, page 2. In other words, Eastman is being used to demonstrate an aspect of Applicants’ *solution*, using the teachings of

Applicants' specification and claims as a blueprint. See Ecolochem, 227 F.3d at 1372, 56 USPQ2d at 1073 (quoting Monarch); Monarch, 139 F.3d at 881, 45 USPQ2d at 1981 (Fed. Cir. 1998). Without the teachings of Applicants' own specification and claims, how would one of ordinary skill in the art at the time of Applicants' invention establish (as Applicants' claim) a connection between cooling a vertically oriented module, and check valves? Eastman does not establish this connection, Applicants submit that Eastman could only be considered pertinent once the connection is established: in other words, once Applicants' invention is known, and used as a blueprint. The Examiner's response establishes that Eastman is, therefore, neither within Applicants field of endeavor, nor reasonably pertinent to the particular problem with which Applicant was involved. Eastman is therefore nonanalogous art, the selection of which entails impermissible hindsight reconstruction using the teachings of Applicants' own invention.

The same fundamental flaw is apparent in the Examiner's response to Applicants' arguments regarding a suggestion to combine. To establish a *prima facie* case of obviousness, the Examiner must provide substantial evidence establishing a suggestion to combine references, unsupported conclusory statements are insufficient. In re Lee, 277 F.3d at 1342-45, 61 USPQ2d at 1433-35. The suggestion to combine cannot be based upon the teachings of Applicants' own invention. In re Oetiker, 977 F.2d at 1447, 24 USPQ2d at 1447 (Fed. Cir. 1992). The Examiner indicates that there must be "some teaching, suggestion, or motivation to [combine] found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art." See Paper number 8, page 2. Since the Examiner has not cited specific portions of Kobayashi, Eastman, or other art of record indicating a suggestion or motivation to combine, it appears that the Examiner is relying on knowledge allegedly "generally available to one of ordinary skill in the art." Such a finding must still be based on substantial evidence. In re Lee. As previously noted, the critical connection established by Applicants' specification and claims, and absent from the art of record, is the limitation of fluid flow to one direction in order to improve cooling of a vertically oriented electronic module. The Examiner's response presumes, rather than establishes, this connection. The Examiner states "each of the check valves being oriented to allow fluid flow from the tube to the boiling chamber while prohibiting fluid flow from the boiling chamber into the tube *in order to increase the cooling process*." See Paper number 8, page 2, emphasis added. The Examiner's response does not indicate how or why one

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of ordinary skill in the art *at the time of Applicants' invention* would connect one-directional fluid flow with improved cooling of a vertically oriented electronic module. Applicants submit that, on the current record, only Applicants' own specification and claims make this connection, and therefore only Applicants' own specification and claims provide the blueprint for connecting the disparate teachings of Kobayashi and Eastman (i.e., the suggestion to combine). Using the teachings of Applicants' own invention in this manner is improper. *In re Lee*, 277 F.3d at 1344, 61 USPQ2d at 1434.

Applicants respectfully, but most strenuously, disagree with the Examiner's statement that "any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning." Applicants submit that the above listed safeguards are intended to prevent hindsight reconstruction. Rejections must be based upon what was known to one of ordinary skill in the art at the time of Applicants' invention: use of Applicants' teachings in a rejection of Applicants' invention is an improper use of hindsight.

Kobayashi teaches away from the use of check valves, and therefore teaches away from a combination with Eastman, because the express teachings of Kobayashi are inconsistent with one-directional fluid flow. Applicants agree with the Examiner that Kobayashi does not mention check valves. Applicants also understand that merely failing to mention a feature does not, without more, constitute a teaching away, nor does failing to explicitly mention a feature by name prohibit a teaching away. As noted in Applicants' previous response, however, Kobayashi expressly teaches that an objective of the Kobayashi invention is to provide a cooling assembly that provides a degree of cooling capability in any device orientation. The detailed teachings of Kobayashi show a single device capable of providing a degree of cooling in any orientation, *provided fluid is allowed to flow through the condenser tubes in either direction*. As previously noted and described again in detail herein, the Kobayashi device provides cooling when a module is oriented horizontally by allowing fluid to flow in one direction through the condenser tubes. The Kobayashi device provides cooling when a module is oriented vertically by allowing fluid to flow *in the opposite direction through the condenser tube(s)*. Combining the check valves of Eastman with the Kobayashi device in the manner asserted by the Examiner would restrict fluid flow to a single direction, thereby restricting the Kobayashi device to function in one orientation

(vertical OR horizontal, but not both), contrary to the stated objectives of Kobayashi. A combination that results in a device that is inoperable for its intended purpose strongly teaches away from the combination, and therefore cannot provide a basis for a *prima facie* case of obviousness. McGinley, 262 F.3d at 1354, 60 USPQ2d at 1010; Tec Air, 192 F.3d at 1360, 52 USPQ2d at 1298.

The compounded effect of an absence of a specific source for the motivation to combine Kobayashi and Eastman, plus Kobayashi's strong teaching away from combination with Eastman, constitutes a critical omission in the obviousness rejection. Ecolochem, 227 F.3d at 1374, 56 USPQ2d at 1075.

Since Eastman is nonanalogous art, and the art of record does not establish the suggestion to combine (i.e., does not make the connection between cooling a vertically oriented device and restricting fluid flow to a single direction), and the express teachings and objectives of Kobayashi teach away from one-directional fluid flow (and therefore teach away from the use of check valves, and the combination with Eastman proposed by the Examiner), the rejections under 35 U.S.C. § 103(a) involve an impermissible hindsight reconstruction of Applicants' invention, using Applicants' own invention as a blueprint.

Finally, even if the art cited by the Examiner is combined in the manner suggested by the Examiner (which manner Applicants submit is improper), the combination fails to teach, disclose, or suggest at least one feature of Applicants' claimed invention, and in fact teaches away from at least one feature of Applicants' claimed invention. In particular, Kobayashi fails to disclose, and teaches against, two features: the use of check valves, and the use of a single condenser having inlets disposed at one end of a boiling chamber and outlets disposed at an opposing end of the boiling chamber.

As previously discussed and as admitted by the Examiner, Kobayashi fails to teach, disclose or suggest check valves. Further, the express teachings of Kobayashi are inconsistent with one-directional fluid flow, and are therefore inconsistent with the use of check valves.

Applicants respectfully disagree that Kobayashi discloses a condenser and boiling chamber assembly *as claimed* by Applicants. The Examiner refers to Figs. 1 and 2 of Kobayashi as disclosing “a single condenser unit having inlets and outlets located at the device periphery.” Applicants’ invention is more precisely described, however, with reference to the claims. As recited in claims 1 and 33, Applicants’ claimed invention includes “a boiling chamber within said evaporator, said boiling chamber having a plurality of fluid inlet ports disposed proximate one end of said boiling chamber, said boiling chamber having a plurality of fluid outlet ports disposed proximate an opposing end of said boiling chamber.” According to Applicants’ claimed invention, inlet ports are disposed at one end of the boiling chamber, and outlet ports are disposed at an opposing end. It is not sufficient to have fluid ports of unspecified nature (either inlet or outlet) at each end of the boiling chamber: all inlets are disposed at one end, all outlets are disposed at the opposite end. In contrast, Kobayashi requires fluid flow in both directions in order to provide cooling in any orientation: the condenser / boiling chamber connections in Kobayashi are therefore sometimes inlets, sometimes outlets, depending on device orientation. Furthermore, as illustrated in Fig. 1 of Kobayashi, when the device is oriented horizontally the ports at both ends of the boiling chamber perform the same function: both are inlet ports to the boiling chamber. In the orientation of Fig. 1, outlets from the boiling chamber are disposed at the center of the boiling chamber, not the periphery. Fig. 1 of Kobayashi, therefore does not teach, disclose, or suggest “said boiling chamber having a plurality of fluid inlet ports disposed proximate one end of said boiling chamber, said boiling chamber having a plurality of fluid outlet ports disposed proximate an opposing end of said boiling chamber” as recited in Applicants’ claims 1 and 33.

Applicants’ invention further differs from Kobayashi in the use of a single condenser in fluid flow communication with the boiling chamber at opposite ends of the boiling chamber. As recited in claims 1 and 33, Applicants’ invention includes “a condenser having a plurality of tubes, each of said plurality of tubes being in fluid flow communication with one of said plurality of fluid outlet ports and one of said fluid inlet ports.” Each condenser tube of Applicants’ claimed invention, therefore, connects an outlet port at one end of the boiling chamber with an inlet port at the opposite end of the boiling chamber. In contrast, the Kobayashi device includes two condensers, each of which connects a port at one end of the boiling chamber *with a port at*

the center of the boiling chamber. No condenser tubes in the Kobayashi device are simultaneously in fluid flow communication with opposing ends of the boiling chamber, as recited in Applicants' claims 1 and 33. Therefore, even if Kobayashi were taken alone or (improperly) combined with Eastman, the cited art fails to teach at least one feature of Applicants' invention as claimed.

Finally, the Examiner has not addressed Applicants request for clarification regarding the references used in the rejection of claims 3-5, now similarly applied to claims 34-36. Applicants request verification that the Examiner is also relying on a combination involving Eastman in each of these rejections. In the alternative, Applicants respectfully traverse the rejections of claims 3-5 and 34-36, since the art explicitly cited by the Examiner fails to teach, disclose, or suggest a feature of Applicants' invention as claimed.

Obviousness Rejections

Regarding the rejections of claims 3-5 and 34-36 under 35 U.S.C. § 103(a), Applicants have summarized the rejections as they believe the Examiner intended, rather than as expressly documented in the Office Actions mailed September 9, 2003, and February 4, 2004. In particular, while claims 1 and 2 were rejected in view of Kobayashi and further in view of Eastman, the rejections of claims 3-5 and 34-36 do not expressly indicate that they are based in part upon Eastman. For example, the Office Actions indicate that claims 3 and 34 stand rejected in view of Kobayashi "as applied to claims 1 and 2 above, and further in view of Terao..." Since claims 1 and 2 stand rejected in view of Kobayashi and further in view of Eastman, Applicants have assumed that claims 3 and 34 stand rejected under Kobayashi *and Eastman* as applied to claims 1 and 2, and further in view of Terao. Similarly, Applicants have assumed that claims 4 and 35 stand rejected in view of Kobayashi, Eastman, and Berenholz, rather than Kobayashi and Berenholz as stated in the Office Actions. Applicants have assumed that claims 5 and 36 stand rejected in view of Kobayashi, Eastman, and Mizuno, rather than Kobayashi and Mizuno as

stated in the Office Actions. In order to clarify the record, Applicants request confirmation or correction of the above. In the alternative, Applicants respectfully traverse the rejections of claims 3-5 and 34-36, since the art explicitly cited by the Examiner fails to teach, disclose, or suggest a feature of Applicants' invention as claimed, namely "a plurality of check valves, each of said check valves being disposed within a fluid flow path in proximity to one of said boiling chamber inlet ports, each of said check valves being oriented to allow fluid flow from said tube to said boiling chamber while prohibiting fluid flow from said boiling chamber into said tube."

Applicants first note that generic claim 1 is an independent claim. Claims 2 through 5 and 32 depend from this independent claim, and therefore incorporate all of the recitations of the base claim. Also, claim 33 is an independent claim. Claims 34 through 36 depend from this independent claim, and therefore incorporate all of the recitations of the base claim. Applicants' remarks below, therefore, will focus on independent claims 1 and 33, since if these claims are shown to be allowable over the art cited by the Examiner, then all claims which depend from these claims are therefore also allowable.

As previously noted, claim 1 currently stands rejected under 35 U.S.C. § 103(a) in view of Kobayashi, and further in view of Eastman. Applicants respectfully traverse the rejection of claim 1 based upon the cited art, on several grounds. First, Applicants submit that Eastman is non-analogous art. Second, Applicants submit that the Examiner has not established a suggestion to combine Eastman with Kobayashi. Third, Applicants submit that Kobayashi teaches against a combination with Eastman. Fourth, Applicants submit that Kobayashi fails to disclose, teach, or suggest at least two aspects of Applicants' invention as recited in claim 1, and in fact strongly teaches against both aspects.

Under 35 U.S.C. § 103(a), a determination of obviousness is a determination that "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103(a). The pertinent factual inquiries in making a determination of obviousness are 1) the scope and content of the prior art, 2) the level of ordinary skill in the art, 3) the differences between the

claimed invention and the prior art, and 4) objective indicia of nonobviousness. Graham v. John Deere Co., 383 U.S. 1 (1966). In assessing the scope and content of the prior art, courts have limited the prior art scope to “analogous” art. In re Clay, 966 F.2d 656, 658-59, 23 USPQ2d 1058, 1060 (Fed. Cir. 1992); In re Oetiker, 977 F.2d at 1447, 24 USPQ2d at 1447. A two part test has been developed to determine whether art is analogous: whether the art and applicant’s invention are from the same “field of endeavor,” or whether the art pertains to “the particular problem with which the inventor was involved.” In re Clay, 966 F.2d at 658-59, 23 USPQ2d at 1060 (citations omitted). Applicants submit that Eastman fails both tests.

Applicants submit that Eastman is not within the same field of endeavor as Applicants’ claimed invention. Applicants submit that the Examiner has conceded this point, as previously noted. As noted in the FIELD OF THE INVENTION of Applicants’ specification as filed, “[t]he present invention relates in general to a cooling apparatus for an electronic module.” Applicants submit that Eastman pertains to the use of a flue gas-to-air heat exchanger to reclaim waste heat from flue gases resulting from various industrial processes. See Eastman, column 1 lines 6-9, and 53-55. Reclaiming heat from flue gases is not within the same field of endeavor as cooling electronic modules. Applicants submit that Eastman is therefore not within the same field of endeavor as Applicants’ claimed invention.

Applicants submit that Eastman does not pertain to the particular problem with which Applicants were involved. First, Applicants submit that the Examiner’s *Response to Arguments* verifies that Eastman is being used to demonstrate an aspect of Applicants’ *solution*, and is not pertinent to the *problem with which Applicants were concerned*. As noted in the Background portion of Applicants’ specification as filed, Applicants were involved with the problem of providing “an electronic module apparatus capable of being cooled by airflow, which employs an enhanced method of transferring heat from device to cooling fins, and which is capable of efficient operation when the module is placed directly within the cooling airflow, and the module is oriented vertically.” See Applicants’ specification as filed, paragraph 14. In contrast, Eastman identifies two problems with prior heat exchanger art: “the danger of cooling the hot gas to the point of condensing some of the corrosive chemicals in it,” and “the lack of accomodation [sic] for normal required maintenance and emergency repairs.” See Eastman, col. 1 lines 32-34 and

44-45, respectively. The problems cited by Eastman are unrelated to efficient air cooling of vertically oriented electronic modules. Applicants submit, therefore, that Eastman does not pertain to the particular problem with which Applicants were involved. Applicants' invention employs various means, including check valves, to solve the problems described in the Background section of Applicants' specification as filed. The particular problem with which Applicants were concerned must be viewed in terms of the *problem* that confronted the inventors, not their *solution*: defining the problem in terms of the inventors' solution involves impermissible hindsight. Monarch, 139 F.3d at 881, 45 USPQ2d at 1981. While Eastman appears to discuss the use of check valves (i.e., Applicants' solution) as an optional feature, it does not appear to address electronic device orientation (i.e., the problem with which Applicants were involved).

Applicants therefore submit that Eastman is not analogous art. The rejection of claim 1 under 35 U.S.C. § 103(a) based upon this art therefore cannot stand. Applicants respectfully traverse the rejection of claim 1 on this ground alone, and request that the rejection of claim 1 be withdrawn.

With regard to Applicants' other grounds for traversing the rejection of claim 1 under 35 U.S.C. § 103(a), Applicants' attorney first notes that in order for the Examiner to establish a *prima facie* case of unpatentability under 35 U.S.C. § 103(a), the Examiner must provide references showing every claimed feature of Applicants' invention, as well as some suggestion or motivation to combine the references in the manner taught and claimed by Applicants. In so doing, the Examiner is prohibited from relying on hindsight reconstruction, and instead must establish obviousness based on what was known to one of ordinary skill in the art at the time of Applicants' invention. Applicants submit that these requirements have not been met.

Applicants submit that the Examiner has not provided objective evidence showing a teaching, motivation, or suggestion to combine Eastman with Kobayashi in order to move the art toward Applicants' invention. The Examiner admits that Kobayashi does not disclose check valves, as recited in Applicants' claim 1. Applicants agree with this characterization of Kobayashi. The Examiner notes that Eastman discloses check valves disposed within a fluid

flow path. Regarding a suggestion to combine Eastman with Kobayashi, however, the Examiner appears to provide only the conclusory statement that “[t]herefore it would be obvious to modify Kobayashi’s invention by providing a plurality of check valves...” Applicants submit that this assertion, without substantial evidentiary support, is insufficient to establish a *prima facie* case of unpatentability. The Examiner appears to be engaging in impermissible hindsight, using the teachings of Applicants’ invention to render Applicants’ invention obvious. The requirement of a showing of some suggestion or motivation to combine is an important safeguard against improper hindsight reconstruction. See *In re Dembiczak*, 175 F.3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999) (limited on other grounds by *In re Gartside*, 203 F.3d 1305, 53 USPQ2d 1769 (2000)). It is improper for the Examiner to use Applicants’ invention to provide the suggestion or motivation to combine. *In re Oetiker*, 977 F.2d at 1447, 24 USPQ2d at 1447. A finding of a suggestion or motivation to combine must be based on substantial evidence; unsupported conclusory statements are insufficient. *In re Lee*, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002). In particular, the Examiner does not provide any reasoning or objective evidence establishing why it would have been obvious to modify the express teachings of Kobayashi by limiting fluid flow to a single direction. Applicants submit, therefore, that the Examiner has not established a suggestion or motivation to combine Eastman with Kobayashi. The rejection of claim 1 under 35 U.S.C. § 103(a) based upon this art therefore cannot stand. Applicants respectfully traverse the rejection of claim 1 on this ground alone, and request that the rejection of claim 1 be withdrawn.

Applicants further submit that Kobayashi teaches away from a combination with Eastman. In particular, the express teachings of Kobayashi require fluid flow in different directions within each condenser, depending upon device orientation. As noted in Kobayashi, column 2 lines 4 through 10:

It is another object of the present invention to provide a cooling apparatus in which the refrigerant can circulate efficiently even when the apparatus is inclined.

It is further object of the present invention to provide a cooling apparatus in which the refrigerant can circulate efficiently even if the refrigerant tank is disposed in a horizontal direction or a vertical direction.

Therefore, one object of Kobayashi is to provide a device that operates when oriented horizontally (i.e., as in Fig. 1) as well as when oriented vertically (i.e., as in Fig. 3). Applicants submit that the device shown in Figs. 1 and 3 can achieve this objective only if fluid is allowed to flow in either direction through the condenser tubes. When oriented horizontally as in Fig. 1, fluid circulation is “along a route in the order of connection chamber, one ends of the first and second tubes, first and second tubes, the other ends of the first, and second tubes to refrigerant tank.” Kobayashi, column 7 lines 48-50. Fig. 1 illustrates fluid flowing into connection chamber 23, then into the ends of condenser tubes (41a and 42a) in fluid flow communication with connection chamber 23, through tubes 41 and 42, then to the ends of condenser tubes (41b and 42b) nearest the periphery of the device. When oriented vertically as in Fig. 3, however, Kobayashi teaches fluid flow in the opposite direction, through only one condenser tube: “[i]n this embodiment, the refrigerant 30 after boiling and vaporization circulates along a route in the order of refrigerant tank 20, the other end 41b of the first tube, first tube 41, one end 41a of the first tube, connection chamber, and refrigerant tank 20.” Kobayashi, column 9 lines 13-16. Figs. 1 and 3 also include arrows indicating the direction of fluid flow in each orientation. Applicants submit, therefore, that including one or more check valves within the condenser tubes of the Kobayashi invention results in a device that functions in *some but not all orientations*, contrary to the expressly stated objectives of Kobayashi. Applicants therefore submit that Kobayashi teaches against the use of check valves, and therefore teaches against a combination with Eastman. The rejection of claim 1 under 35 U.S.C. § 103(a) based upon this art therefore cannot stand. Applicants respectfully traverse the rejection of claim 1 on this ground alone, and request that the rejection of claim 1 be withdrawn.

Applicants submit that Kobayashi fails to disclose, teach, or suggest at least two aspects of Applicants' invention as recited in claim 1, and in fact strongly teaches against both aspects. First, as discussed above, Kobayashi teaches a device that may be used in various orientations *provided* fluid flow is not restricted to one direction. Kobayashi therefore teaches against the use

of check valves as recited in Applicants' claim 1. Second, Kobayashi does not disclose, and in fact teaches against, the use of a single condenser unit having inlets disposed at one end of a boiling chamber and outlets disposed at the opposite end of the boiling chamber, as recited in Applicants' claim 1. Applicants submit that column 1, lines 18-63 of Kobayashi teach against the use of a single condenser having inlets disposed at one end of a boiling chamber and outlets disposed at the opposite end of the boiling chamber. The following passage is instructive (see Kobayashi, column 1 lines 42-49):

In the above-described cooling apparatus, however, since the single first communication pipe is disposed above the liquid level of the refrigerant in the peripheral edge portion of the refrigerant tank and the single second communication pipe is disposed as to be open below the refrigerant liquid level in the peripheral edge portion of the refrigerant tank, there occurs the following problems when the cooling apparatus itself is inclined.

Kobayashi appears to teach a solution involving two separate condensers or radiators, where one end of each radiator is in fluid flow communication with a central portion of a refrigerant tank, and the other end of each radiator is in fluid flow communication with a peripheral portion of a refrigerant tank. See Kobayashi, column 2 line 15 through column 3 line 3. Applicants' claim 1 recites "a boiling chamber within said evaporator, said boiling chamber having a plurality of *fluid inlet ports disposed proximate one end of said boiling chamber*, said boiling chamber having a plurality of *fluid outlet ports disposed proximate an opposing end of said boiling chamber*," contrary to the express teachings of Kobayashi. Applicants submit, therefore, that Kobayashi fails to disclose, teach, or suggest at least two aspects of Applicants' invention as recited in claim 1, and in fact strongly teaches against both aspects. The rejection of claim 1 under 35 U.S.C. § 103(a) based upon this art therefore cannot stand. Applicants respectfully traverse the rejection of claim 1 on this ground alone, and request that the rejection of claim 1 be withdrawn.

Claim 1 therefore includes recitations that are not taught, disclosed, or suggested by the art upon which the Examiner has relied. Applicants therefore respectfully traverse the rejection of claim 1 under 35 U.S.C. § 103(a) based upon Kobayashi and Eastman, for each of the reasons

stated herein. Applicants therefore request that the rejection of claim 1 under 35 U.S.C. § 103(a) be withdrawn.

Claims 2 through 5 depend from claim 1, and therefore incorporate by reference all recitations of claim 1. Since claim 1 includes one or more recitations that are not taught, disclosed, or suggested by the art upon which the Examiner has relied, claims 2 through 5 also include one or more recitations that are not taught, disclosed, or suggested by the cited art. Applicants therefore respectfully traverse the rejections of claims 2 through 5, and request that the rejections be withdrawn.

Claim 32 depends from claim 2 and therefore incorporates all recitations of claim 2 (and therefore of independent claim 1). Claim 32 is therefore allowable by virtue of its dependence upon an allowable base claim. In addition, Applicants submit that claim 32 introduces a recitation that is not taught, disclosed, or suggested by the cited art: liquid cooling fluid at a higher level in the boiling chamber than the level of liquid in the condenser. Applicants submit that this feature is not taught, disclosed, or suggested by any of the art cited by the Examiner: claim 32 is therefore allowable for this reason alone, as well as by virtue of its dependence upon an allowable base claim. Applicants therefore respectfully traverse the rejections of claim 32, and request that the rejections be withdrawn.

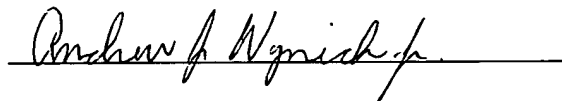
Applicants submit that the above remarks apply to claims 33 through 36. Claim 33 includes all recitations of claims 1 and 2 as filed, plus claim 32. Claim 33 is therefore allowable for all of the reasons presented herein with respect to claims 1, 2, and 32. Claims 34 through 36 are analogous to claims 3 through 5 as filed, respectively: claims 34 through 36 are therefore allowable for all of the reasons presented herein with respect to claims 3 through 5. Applicants therefore respectfully traverse the rejections of claims 33 through 36, and request that the rejections be withdrawn.

In summary, for the reasons presented above, Applicants respectfully traverse the rejections of claims 1 through 5 and 32 through 36, and respectfully request that the rejections be withdrawn. Applicants submit that claims 6 through 10 are in the form required by 37 C.F.R. §

1.141(a). Applicants therefore submit that claims 1 through 10 and 32 through 36 are in condition for allowance.

Accordingly, it is now seen that all of the Applicants' pending claims are in condition for allowance. Therefore, early notification of the allowability of Applicants' claims is earnestly solicited. Furthermore, if there are any matters which the Examiner feels could be expeditiously considered and which would forward the prosecution of the instant application, Applicants' attorney wishes to indicate his willingness to engage in any telephonic communication in furtherance of this objective. Accordingly, Applicants' attorney may be reached for this purpose at the number provided below.

Respectfully submitted,

A handwritten signature in cursive script, reading "Andrew J. Wojnicki, Jr.", is written over a horizontal line.

Andrew J. Wojnicki, Jr. - Attorney

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